



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/739,456	12/17/2003	Dae-Woo Son	9903-068	9321
20575	7590	10/06/2005	EXAMINER	
MARGER JOHNSON & MCCOLLOM, P.C. 210 SW MORRISON STREET, SUITE 400 PORTLAND, OR 97204			OWENS, DOUGLAS W	
			ART UNIT	PAPER NUMBER
			2811	
DATE MAILED: 10/06/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/739,456	SON ET AL.	
	Examiner	Art Unit	
	Douglas W. Owens	2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 21-33, 38 and 39 is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-18, 20 and 34-37 is/are rejected.
- 7) ☒ Claim(s) 5 and 19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. ____   |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>12/17/03</u>  | 6) <input type="checkbox"/> Other: ____                                     |

## DETAILED ACTION

### *Specification*

1. Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

2. The abstract of the disclosure is objected to because the final sentence of the abstract draws reference to purported merits of the invention. Correction is required.

See MPEP § 608.01(b).

### *Claim Objections*

3. Claim 16 is objected to because of the following informalities: The claim recites the limitation "the opening" in line 1. There is no antecedent basis for this limitation.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1 – 4, 6 – 9, 13 – 18, 20 and 34 – 37 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 5,744,859 to Ouchida.

Regarding claim 1, Ouchida teaches a tape circuit substrate (Fig. 1), comprising:

a base film (7); and

a plurality of beam leads (8) adjacent the base film, each beam lead including a wavy portion (portion that dips into the opening (21)).

Regarding claims 2 and 7, Ouchida teaches a tape substrate, wherein the base film includes a flexible film (Col. 6, lines 23 – 30).

Regarding claims 3 and 8, Ouchida teaches a tape substrate, wherein the wavy portion is a zigzag wavy portion.

Regarding claim 4, Ouchida teaches a tape substrate, wherein the base film has a substantially uniform thickness that follows the contours of the beam leads up to the wavy portion.

Regarding claim 6, Ouchida teaches a semiconductor chip package comprising:

an integrated circuit chip (3) inherently including a plurality of chip pads, since the electrode bumps (15) would be connected to the chip pads; and

a tape circuit substrate having a top surface; and

a plurality of beam leads formed on the top surface of the base film, wherein one end portion of the beam lead extends toward the chip pad from the base film and bonded to the chip pad, and wherein the extended portion of the beam lead has a wavy portion.

Regarding claims 9 and 35, Ouchida teaches a chip package, wherein the wavy portion of the beam lead includes a neck part, a bent part and an end part.

Regarding claim 13, Ouchida teaches a chip package, wherein the IC further includes bumps (15, 35) on the chip pads.

Regarding claim 14, Ouchida teaches a chip package, further comprising:

a sealing resin (13) encapsulating the chip bumps formed on the pads.

Regarding claim 15, Ouchida teaches a chip package, wherein the other end portion of each beam lead is an external connection terminal.

Regarding claim 16, Ouchida teaches a chip package, wherein the opening (21) is formed on a substantially central portion of the base film so that the chip pads of the integrated circuit chip are exposed through the opening.

Regarding claim 17, Ouchida teaches a chip package, wherein the top surface of the base film faces toward the top surface of the integrated circuit chip.

Regarding claim 18, Ouchida teaches a chip package, wherein the top surface of the base film faces the same direction as the top surface of the integrated circuit chip.

Regarding claim 20, Ouchida teaches a semiconductor chip, wherein the tape substrate further includes a protective layer (13) covering the beam leads and the top surface of the base film.

Art Unit: 2811

Regarding claim 34, Ouchida teaches a semiconductor chip package comprising:  
an integrated circuit chip (3) inherently including a plurality of chip pads, since the electrode bumps (15) would be connected to the chip pads; and  
a tape circuit substrate including:

a base film having an opening (21) formed therethrough, the opening defining an inside edge, and

a plurality of beam leads formed on the base film, wherein each beam lead has a portion extending from the edge of the base film into the opening and wherein the extended portion of each beam lead has a wavy portion.

Regarding claim 36, Ouchida teaches a chip package, wherein the wavy portion of the beam lead extends straight into the opening at the neck part and bends downward toward the chip pads at the bent part.

Regarding claim 37, Ouchida teaches a chip package, wherein the wavy portion is adapted to move laterally during an inner lead bonding process.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 10 – 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ouchida.

Art Unit: 2811

Ouchida is silent with respect to the length and width of each section of the beam leads. One having ordinary skill in the art would have been required to arrive at the optimal dimensions through obvious and routine experimentation. It would have been obvious for one having ordinary skill in the art to arrive at the recited lengths and widths through routine experimentation, since it is desirable to produce a package that meets design specifications.

***Allowable Subject Matter***

8. Claims 5 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. Claims 21 – 33, 38 and 39 are allowed.

10. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record does not teach, alone or in combination, including “a plurality of solder balls formed on a second surface of the base film” and “wherein, a first end portion of each beam lead is electrically connected to the solder ball.” The prior art does not teach a tape circuit substrate “wherein the base film does not have an opening extending therethrough.”

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Douglas W. Owens whose telephone number is 571-272-1662. The examiner can normally be reached on Monday-Friday.

Art Unit: 2811

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven H. Loke can be reached on 571-272-1657. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Douglas W Owens  
Examiner  
Art Unit 2811

DWO